

The Causes of Gender Discrepancies in Executive Level Government Officials in Europe

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Abstract

As the number of women increase in office, female politicians at the executive level are disproportionately placed into offices pertaining to health, welfare, and social concerns. I argue that descriptive representation is influenced not only by the absolute number of minority office holders, but also by the characteristics of the politicians, and the political system. When the demand for female politicians increases in the electorate, women will then be disproportionately given portfolio at the cabinet level in a “feminine” issue areas, partially because women enter into politics by different routes than men, partially because of demands from the electorate. To test my argument, I developed a new data set that tracks the professional background of cabinet level officials in 24 European countries. The professional training of all the portfolio holding members of government was recorded for 2004-2005. I test my argument using logistic regression. Results indicate that, controlling for background and demand, women are only over-represented in traditional “women’s” issues, but insufficient evidence exists to suggest that they are under-represented in other issue areas.

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1 Descriptive Over-representation of Minorities

Substantial differences in political behavior exist between male and female politicians. This study investigates the relationship between descriptive representation and substantive representation in European cabinets. The descriptive aspect considered in this paper is gender. What sorts of substantive positions do female politicians seek or receive? After achieving an uphill battle for representation for political office, women are relegated to positions concerned with domestic, regional, and other low political issues (Davis, 1997). Descriptive representation, the reflection of the attributes of a legislative body to its constituencies, guarantees a type of substantive representation. Specifically, the legislators that are representatives of minority groups are pigeonholed into substantive areas only pertaining to their own reference group. Areas of mainstream politics such as the economy, defense, taxes and government finance, are the issues that these groups are forever barred from. The issues that minorities are left to deal with include health, education, children's welfare, welfare, the European Union, and environmental issues.

The puzzle is this: how do *minority* groups become *majority* representatives of certain issue areas, while remaining the minority in others? There is ample evidence to suggest female politicians are routinely seen in posts where there is a synergy between descriptive and substantive representation. More directly, women deal with low politics, men with high politics, and there is no crossover. Despite high profile successes, such as a string of minority Secretaries of State in the United States, and Andrea Merkel as the Prime Minister in Germany, it is commonly argued that women, at best, are "second among equals" (Matland, 1994). In general, there is evidence to suggest that this pattern holds in legislative committees in Latin America (Heath, Schwindt-Bayer and Taylor-Robinson, 2005; Schwindt-Bayer, 2006), at the executive level in many regions (Davis, 1997; Siaroff, 2000; Studlar and Moncrief, 1999; Escobar-Lemmon and Taylor-Robinson, N.d.), and that the behavior of individual legislators is split along gender lines (Lovenduski and Norris, 2003). What causes the over-representation of women in some issue areas, and not in others? Heath, Schwindt-Bayer and Taylor-Robinson (2005) argue the matching of gender and issue is evidence of discrimination against female politicians.

While discrimination may be occurring, there is insufficient evidence to be confident in this claim. Other political pressures, some internal to the legislature, some external, can cause patterns that are observationally equivalent to discrimination. Democratic pressure from the electorate, and self-selection by legislators, can cause discriminatory-like patterns of political behavior. These patterns are distinguishable at the executive level of government. Women could be promoted into cabinet positions because of their gender, or they could be denied posts, because of their gender. Both activities lead to an observation that women are limited to domestic politics. However, the reasoning behind these two routes are very different.

The answer, I argue, is because a pattern of representation where women specialize in domestic politics is normatively desirable, and politically fecund. Female politicians specialize in domestic politics because they have professional skills which are adapted to these area, and because the general public perceives women as being the better candidate. To examine the question of minority representation, I begin by clarifying why a pattern of minority over-representation in issue areas may be not be discrimination. I develop an argument for what kinds of evidence would be indicative of gender based discrimination, at the level of the cabinet. To test these arguments, I developed a data set that examines the gender composition, and individual level characteristics, of 24 European cabinets. After describing the data creation process, I will test the argument of discrimination against women. Ultimately, my evidence suggests that it is difficult to distinguish whether discrimination against women cabinet officials in Europe is occurring, or whether it is a byproduct of some other process, namely political pressures and self-selection due to professional backgrounds. My conclusions will provide policy prescriptions for increasing the depth and the breadth of descriptive representation.

2 Why discriminatory-like behavior may not be discrimination

Politicians act in ways which are normatively not discriminatory, but is observationally equivalent to discrimination. It is not necessary to demonstrate that a bias against women exists in many places in society—this fact is largely self evident. Previous theory suggests that discrimination operated

in such a way that professions, workplaces, and general norms in society follow a tipping point model. A profession would be male dominated, with the inclusion of a few “token” women in the workplace. When women gained a significant numerical foothold in a workplace, it is suggested a quick transition away from tokenism would occur (Kanter, 1977, 1993). Evidence of tokenism is sufficient to show discrimination may be occurring. A low number of women directly implies that discrimination, by this theory. If each portfolio type is treated as a profession, it follows from these theories that discrimination is occurring at the level of the executive. Women are tokens in high political domains, and dominant in low politics, which is exactly the pattern suggested by tokenism.

Increasingly, scholars have been turning away from critical mass theories of discrimination. Childs and Krook (2006) argue it has become apparent that increases in the absolute number of women hasn’t strictly altered substantive political outcomes. In other words, changes in descriptive representation don’t guarantee changes in pertinent issues. Increasing the number of female politicians is still desirable, but, unconditionally, it is unclear what effects the inclusion of women has on political outcomes. Mansbridge (2006) reinforces the idea that there are significant non-discriminatory reasons to prefer having women politicians active in domestic politics. There are many other reasons to increase the descriptive representativeness of legislative bodies. Individuals who share a connection with disadvantaged groups should either have policy preferences, or a more general value system in common with their reference group (Dovi, 2007, 2003; Mansbridge, 1999). Politicians who come from disadvantaged groups are more likely to have beliefs which differ from historically advantaged groups.

If moral reasoning and empirical reality coincide, normatively appealing behavior and discrimination against women will have observationally equivalent outcomes. Dovi (2003) suggests that a strong connection between minority groups and minority representatives should be the criterion for evaluating descriptive representatives. “Preferable descriptive representatives will have strong *mutual* relationships with *dispossessed subgroups*” (pg. 735). By mutual, Dovi is suggesting that the representatives “share aims” with their constituents (pg. 737). This sharing should be a

combination of either policy preferences or values, or both. Dovi argues that, when selecting representatives “for appointments, committees, or public office” picking descriptive representatives who meet her criterion are preferable. Those candidates selected should be *most likely* to work in issue areas which are thought to be feminine issues. The behavior that is desirable would be evidence of discrimination, in the token women framework.

3 Theory and Hypotheses

I argue that that connection between substantive and descriptive representation in government is driven by political necessity and personal expertise. Prior evidence suggests that electoral pressure can lead to the active promotion of women as politicians (Sanbonmatsu, 2002; Norris and Lovenduski, 1995). Who you are as you go into politics can be just as important as the fact that you are in politics. Professional background, personal experiences, and the expressed interests of politicians influence their substantive political activities (Chaney, 2006; Childs, 2008).

3.1 Democratic Pressure

Democratic electoral pressure can lead to women being quickly promoted to deal with non-economic domestic issues. Empirically, studies show that voters perceive women as being more qualified than men depending on the issue area (Matland, 1994; Sanbonmatsu, 2002; Norris and Lovenduski, 1995). The marginal gains created by promoting women is fairly clear for proportional representation systems. The pool of female candidates is much larger, typically, for PR systems than for Single Member District electoral systems (Matland and Studlar, 1996; Matland, 1998; Studlar and McAllister, 2002; Salmond, 2006). With this larger group, more minority candidates exist for appointment. An entrepreneurial party can take advantage of electoral gains by promoting women in legislative politics in a PR system, since seats are relatively inelastic compared to vote totals. Small parties can gain seats easily by entering a new policy space in a political system with PR elections. In order to protect bargaining positions vis-à-vis the small parties, large parties move to increase the number of women in their own party. The mechanism by which electoral pressure

turns into descriptive representation occurs through a process of political competition between parties. Proportional representation electoral systems create the incentive structure most likely to see that kind of inter-party competition.

Politicians, seeing they can capture seats by promoting female politicians will move to do so. Because of the pressure of competition, all opponents react and apply identical strategies. Since women are members of a disadvantaged group, it is politically dis-advantageous to say “women should deal with domestic issues, and men with real politics” as this propagates the felt oppression of the majority. Only by giving ground on domestic issues and being ambivalent elsewhere is an astute politician likely to be able to minimize offense. This is compounded by the small number of women politicians. Since a politically ideal system of pre-existing gender balance does not exist, politicians are limited in their choices. If there are relatively large numbers of women who are qualified for cabinet posts, politicians have the most to gain by placing women in a larger variety of positions.

A distinction in types of cabinets is the “generalist” cabinet which is paired against the “specialist” cabinet (Blondel and Thiebault, 1988). In specialist systems, administrative experience and technical expertise are more highly valued than political experience and party history, relative to generalist cabinets. The states with specialist systems are most likely to guarantee female representatives. Specialist systems, along with having a numerical advantage (Davis, 1997; Siaroff, 2000), will also generate the widest variety of women portfolio holders, but the link between background and portfolio type will be the strongest in these legislatures. If the cabinet is a specialist cabinet, this only reinforces the pressure of electoral politics. Qualifications are a political space that can be captured.

How electoral pressure translates into substantive representation is more difficult to map in SMD systems. To begin with, pluralist electoral systems have a drastic effect reducing the number of women politicians, most likely because of an incumbent effect and because of the higher costs associated with gaining office (Schwindt-Bayer, 2005). The relationship of seat marginality to policy spaces is much less direct in SMD systems. During periods of increased electoral competition,

when a large number of seats are highly marginal, I would expect that the pressure to adopt female legislators, and, by proxy, cabinet members will be the highest.

Partisanship may cause differential effects. Empirically, it appears that parties on the left of the political spectrum are usually first adopters of both women politicians, and of women as proposed (or realized) cabinet members (Matland, 1998; Davis, 1997). Since my key variable of interest is the effect of portfolio type on the gender of a cabinet member (or its inverse), it seems necessary to control for party, though the mechanism by which this is the case seems less certain. Where partisanship is most likely to have an effect is through a synergy between recruitment and women's issues. The left is simply more likely to have policy positions that match a preponderance of more activist oriented issues. This implies that the correlation between partisanship and background will be non-zero, but that does not strictly imply that it will be non-zero for the correlation between portfolio type and partisanship.

3.2 Self-Selection by Legislators

Politicians, beyond purely structural reasons, may have the incentive to pursue some policies over others. Women politicians, by virtue of different interests and different professional backgrounds, are likely to pursue different policy agendas than men. Empirically, there is evidence to suggest this is true, even within parties (Wangnerud, 2000; Lovenduski and Norris, 2003; Norris, 1996). How does this impact the gender of cabinet members? Politicians must balance a large number of issues as it pertains to achieving political success. It should be noted that the level of ambition is not among those choices (Streek, Bock-Rosenthal and Haase, 1981). High level politicians of both genders are interested in maximizing their political success. In order to be personally efficacious, politicians will pursue issues of personal interest for which they possess technical proficiency. Further, women may feel compelled to self-select into certain areas simply because of low numbers of women (Childs, 2001).

3.3 Discrimination

Arguments for why discrimination could take place seem self evident. First, if there is nothing to lose, electorally, from not promoting women politicians could discriminate in the executive—though this would not *necessarily* have the effect of creating the patterns in descriptive behavior. In terms of coalition politics, the case that certain parties would be against placing women into cabinet positions because party leaders believe that women are not credible holders of the party line could cause discrimination. In other words, if women hold different opinions than men, then party leaders may be reticent to promote women to cabinet positions. If cabinets work in such a way that cabinet positions are relatively autonomous providers of policy, then placing individuals who are preference outliers is a risky proposition, from the position of party leaders (Thies, 2001). Considering that logic jointly with the empirical proposition that women in parties on the right tend to hold more liberal positions than men, it seems intuitive that women might be discriminated against, even holding self-selection issues constant, for conservative political parties.

3.4 Hypotheses and Model

In order to shape my expectations, I'll need to supply some formal structure to the empirical problem. I represent the gender of a cabinet member, i for country c , with the letter G . Let $G = I(\text{Female}_{ic})$. The function, $I(\bullet)$, is an indicator function, which takes on a value of 1 if the argument is true for the function, and a zero otherwise. There is j categories of portfolio types, P . I have k categories of professional backgrounds B . I include a function which consists of a set of control variables $f(\mathbf{X}_{ic})$. Formally, my hypotheses are:

H_1 : ceteris paribus, negative discrimination exists if women are *less likely* to receive a portfolio than men. Formally, if $\Pr(G_i = 1|P_j, B_i, f(\mathbf{X}_{ic})) < \Pr(G_i = 0|P_j, B_i, f(\mathbf{X}_{ic}))$

H_2 : ceteris paribus, positive discrimination exists if women are *more likely* to receive a portfolio than men. $\Pr(G_i = 1|P_j, B_i, f(\mathbf{X}_{ic})) > \Pr(G_i = 0|P_j, B_i, f(\mathbf{X}_{ic}))$

H_0 : The null hypotheses is that the two processes are independent. Formally,

$$\Pr(G_i = 1 | P_j, B_i, f(\mathbf{X}_{ic})) \perp \Pr(G_i = 0 | P_j, B_i, f(\mathbf{X}_{ic}))$$

Convincing empirical evidence of discrimination would show that qualified female candidates were routinely denied posts in favor of men, qualified or unqualified. The definition of qualified would be contingent; tel in a generalist cabinet, qualified would be defined as sufficiently senior, with a mix of ministerial experience. In a specialist cabinet, qualified would be defined as possessing a professional background that was matched with the issues area of the portfolio. However, in this case I have only observational data, I cannot observe the candidates, qualified or not, who did not receive the post. If ministers only come from the legislature, then the task is simplified, though not to the point of being able to bring statistical inference to bear on the problem. Given that I cannot observe the selection process, very few pieces of information can serve to demonstrate discrimination. It is insufficient that unqualified men receive posts—there may not have been any qualified women either.

Causally, a model suggested by the theory is $\text{Portfolio}_{ji} \leftarrow \text{Gender}_i | \text{Background}_i$, for the issue areas that being a member of a disadvantaged group plays a significant role, otherwise, I expect there will be no relationship if gender does not matter, or it will run contrary to expectations if discrimination is present. I estimate the model

$$\text{logit}[Y_i] = \beta_0 + \beta'(\text{Portfolio}_{j-1,ic}) + \beta'(\text{Background}_{k-1,ic}) + \beta' \mathbf{X}_{ic} + \epsilon$$

where there are $j = \{1, 2, \dots, 12\}$ portfolio types, with the first category excluded, where there are $k = \{1, 2, \dots, 10\}$ categories of backgrounds, with the first category excluded, and $\mathbf{X}_{i,c}$ is a vector of control variables of dimension $r \times 1$, where r is the set of control variables, i is the individual respondent, and c is the index by country.

The choice of model came about for two reasons. First, while causally the model suggested may run the other direction, statistically, I can only distinguish correlations, and in this observational framework I expect the correlation to be non-zero. For example, the results of a bivariate regression

of X on Y , assuming that X really is a causal factor for Y will show a non-zero correlation between X and Y regardless of the direction of causality. Because of this, what would otherwise be 11 equations of which I would need to keep track, I can treat it as if it was one equation. A second reason is for problems of computation, as will be discussed in the analysis section.

4 Data

To explore the question of gender discrimination in the cabinet, I gathered original data on the composition of 24 European governments. The data gathering process occurred during December 2004 through March 2005. Only top executive level officials enter into the data base, junior ministers, under secretaries, and the like did not enter. Prime ministers, however, were included. One election occurred during that period, in Sweden, and the post election cabinet was used for the purpose of this study. I wished to gather the population of data on any state in Europe that could loosely be considered an stable, advanced industrial democratic state. I sought to gather data on every current minister in Europe, with a few exceptions. Microstates, such as San Marino, the Vatican, Liechtenstein, and Monaco, would be excluded because their relatively small size would perhaps make generalization to and from the larger states more difficult. Several, such as Vatican City, Monaco, and Bosnia-Herzegovina have highly atypical political systems. In terms of unusual governmental structure alone, Switzerland was also removed from the data gathering process due to the unique appointment pattern in that state. Many Eastern European states were excluded on the basis of the fact they are unlikely to be considered advanced industrialized democracies, so it seemed harmful to include them in the study. Countries such as Russia, Belarus, Malta, and Albania were excluded from consideration on that basis. While 24 states in Europe is not exactly poor coverage, the few states that are missed do raise some flags, concerning causal inference. Three of the missed include Spain, Greece, and Italy, countries with histories of patriarchy and discrimination against women. Out of sample predictions are always a problem for any analysis, but generalizing to states where there quite possibly are people in positions of power inhibiting women from entering politics is a tenuous step at best.

To gather individual level characteristics of the cabinet members, I utilized the domestic websites of the 24 countries in this study. Most had English translations for the websites, and nearly all had biographies of the ministers listed on the website. The theoretic question implies gathering information on both political system wide factors, as well as individual level characteristics of portfolio holders. A key piece of individual level information, I felt, was professional background prior to entering politics. If politicians are driven to maximize their potential than they will likely follow a route that takes advantage of their expertise they developed prior to their political experience. A second individual level characteristic, obviously, is the type of portfolio held.

4.1 Gender

A seemingly trivial task made somewhat more difficult due to language barriers and the occasional lack of pictures. Because of the wide variety in names, occasionally it was difficult to ascertain the gender of the portfolio holder. To develop the initial lists, I utilized the CIA's *Chiefs of State and Cabinet Members of Foreign Governments* database, which is freely available online.² In cases of ambiguity, a variety of sources were used to distinguish the gender of the portfolio holder, primarily news reports. Table One has the distribution of gender by country. The number of observations for this table is slightly higher than the number of observations used in the modeling exercises. This is the case because, while gender was frequently observable, other pieces of information were more difficult to gather. Two countries in particular, France and Portugal, did not have biographies available, and are excluded from later analysis.

4.2 Portfolio Type

For the categories for portfolio type I used Keman (1991). Keman's study showed that the relationship between pre-political profession and cabinet types is not independent. My codes for the portfolios and professions overlap with German (1991) and his similar analysis of the professional backgrounds of top cabinet members. For portfolio, I decided upon a list of twelve categories, eight

²Last accessed 3/9/09, data for the study was accessed December 2004-March 2005. <https://www.cia.gov/library/publications/world-leaders-1/index.html>

of which came directly from Keman: foreign affairs, defense, finance/budget, economy, industry and commerce, social welfare (including health, labor, and education. My coding including a few extra, and altered one category. The altered category was that of industry and commerce, which I decided to incorporate agricultural positions. I added a few that seemed of a theoretic interest to do so: European Union/Regional/Environmental positions, Justice ministerial positions, minister of the Interior, and an “other” category, that was generally combined with transportation. Justice and Interior seemed like natural additions, and since the book was written in 1991, including a category for the proliferation of related regional and European Union portfolios seemed theoretically sound. Another difficulty in coding the positions was that a single individual was occasionally gifted with multiple portfolios. In those cases I chose to code the first title that occurred alphabetically. A somewhat unavoidable consequence of the coding is that some states, for some categories, have multiple entries.

4.3 Professional Background

Professional background was coded in a similar fashion, with six of the categories coming generally from Keman, and the rest additions to more adequately cover the breadth of professions: Law, Academic/Medicine, Bureaucracy, Lobby/Activist, Business, Engineering/Agriculture, Party Organization, Arts/Media (i.e. journalists), Teaching, and an “other” category. However, unlike cabinet portfolios, a natural connection between the information on the website and the choice of category was not as strong. For example, a non-trivial number of justice ministers had backgrounds in both law and academic work. Fortunately, most biographies were sufficiently fleshed out to allow differentiation between different professions. One difficulty which I think is left unresolved is this: the largest category, was the legal profession, for both men and women. However, within the field of Law there is more information which was difficult to uncover. Namely, a constitutional lawyer is different than a corporate lawyer which is different than a divorce lawyer. Lawyers with these substantively different interest within law might decide to pursue much different goals if they become politicians.

4.4 Political System Controls

Data on the electoral system of the country, and the partisan composition of the ruling coalition in 2005 came from the Database of Political institutions, maintained by Phil Keefer at the World Bank (Beck et al., 2001).³ The proportional representation variable is a dummy variable which takes on a value of 1 if the system is PR. States are coded as having a PR system if some percentage of their seats is apportioned in a way reflect of the vote total the party received. The partisan composition of the ruling coalition comes from the same data base, and is also an dummy variable. The variable takes on a value of 1 if the largest party in the ruling coalition is a party on the right of the political spectrum.

The categorization of specialist and generalist cabinets comes largely from Siaroff (2000). The coding rule that Siaroff (2000) describes that Davis (1997) uses is whether a member of government can concurrently be an MP. The implication for these systems is that participation in party politics is eventually and directly rewarded with a place in government. For 13 countries I have used the coding listed in Siaroff (2000). For the other 11 countries, I consulted the Inter-Parliamentary Union's Parline database.⁴ If being a member of government was listed as an incompatibility for membership in the legislative body, that country was coded as a specialist legislature, otherwise they were coded as a generalist. Table one has the distribution of these three political system variables.⁵

5 Analysis

The data for this project have some issues which makes modeling difficult. If the data is treated as a $12 \times 10 \times 2$ contingency table, a few of the cells are empty. There are no female economics

³Last Accessed 3/29/09 <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20649465~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html>

⁴Last Accessed for data 2/28/09. <http://www.ipu.org/parline-e/parlinesearch.asp>

⁵One control that would seem intuitively strong, is the proportion of women in the legislature. However, the proportion of women in the cabinet is relatively uncorrelated with any particular portfolio. For all the portfolios, the correlation is below .1 in absolute value. The reason this is so is part of why I feel that many of the political controls will have little effect. The problem is that every country almost always has every type of ministry. By design, the unconditional correlation between the portfolio types and political system controls will be quite small.

or finance ministers in this sample. This would cause significant problems with multinomial logit or probit estimation; given a multinomial setup, for some equations the dependent variable would not vary. Switching the direction of the model does not fully alleviate this problem. Traditional logit models are not capable of creating parameter estimates when one of the independent variables perfectly predicts failure.

The results, in summary, indicate that I have insufficient information to suggest that women are being discriminated against, at the level of cabinet politics. Discrimination is most likely occurring prior the entrance into politics. Three large offenders are the military, the business sector, and the scientific communities of Europe, which have a strong negative effect. For some areas, namely Welfare, Education, and regional politics, women are actively promoted into the cabinet over men. While negative discrimination, the type where women are denied posts because of their gender, may be occurring, I am unable to distinguish this negative discrimination from the positive type. However, for two types of professional backgrounds, legal and public sector, the portfolio holder's gender and the portfolio type are not independent. I take this as an indication that these categories are poorly coded, as public sector included such diverse professions as police officers and social workers. The legal profession also contains a large amount of ambiguity, as there is no distinguishing between types of law that were practiced prior to politics.

5.1 Non-Parametric Results

Most, if not all, of the substantive points of interest can be figured from non-parametric results. The primary results which are not testable in this framework concern control variables. However, my expectation is that the control variables will have little substantive impact on any single category; because of the categorical nature of the data there will be little to no covariation between systemic level controls and portfolio types. Since most every country has a justice minister, or a defense minister, I expect that there would be basically no covariance between country level controls and my main variable of interest, portfolio type. Moving into the parametric case, this implies that I should expect little change from the inclusion of controls.

Table 1 has the distribution of gender across European cabinets. Unsurprisingly, I see a lot of variation by country. In my sample, Germanic and Scandinavian countries have by far the highest representation. In 2005, Sweden had a cabinet where a majority of women held cabinet positions. I can reject a null hypothesis of independence between country and the gender make up of the cabinet, at $p < 0.006$. The coverage I have of gender across cabinets is larger than that I have of gender, portfolio types, and backgrounds. Excluding cases for which I have no background data, the N for this study shrinks to 294, and the number of countries to 22. The two countries I lose from my analysis are France and Portugal.

One of the conditions I posit for my study is that women and men enter into politics from different routes, and this, in part, is what causes differences in descriptive representation. Table 2 has the distribution of professional background by gender. For my sample, the vast majority of portfolio holders were men, 226 men to 68 women. I can strongly reject the hypothesis that background and gender are unrelated ($p < 0.001$). Because of the paucity of women in the sample, it is hard to detect any clear pattern of how women might be different than men. However, if I flip the question, it is clear that men very rarely come from either teaching, activist, or party politics backgrounds prior to entering politics. Women are more evenly distributed, but men clearly not.

Figure 1, along with tables two and three, begin to get at the a key result for this study, the relationship between background and portfolio. Tables 3 and 4 are best thought of jointly, as a three dimensional table, with the z axis being gender. Figure one is the frequency distribution of gender across types of portfolios. As with previous studies, female politicians are more likely to have cabinet types which deal with domestic politics. No women hold either finance or economy portfolios. The lack of women portfolio holders in this are highlights a shortcoming of this study; I am unable to observe whether there were candidates who could have received those positions. Table 3 is a table of portfolio type by professional background, for women only. I am unable to reject a hypotheses of independence between background and portfolio type. It is difficult determine if profession a driving factor for women. It seems prudent to be cautious of any finding from Table 3 which rely on asymptotic reasoning. There are a large number of empty cells, and two

categories have no observations. The number of observations for that table is relatively small given the large number of categories. There are 120 cells in Table 3, but only 68 observations. Table 4 is the equivalent table for male cabinet holders. For this table, I can reject the null hypotheses that the two variables are independent. For men, I can be certain that background is not independent of portfolio type, a result which mirrors Keman (1991).

Table 5 gives us the probability that portfolio type and gender are not independent, given the professional background of the cabinet member. Only two backgrounds seem to have a relationship between these two categories, the legal and public sector professional types. Further, both of these results are marginal at best, while both achieve a 95% of significance, both just barely get past that mark at 0.049, and 0.037 respectively. For no other categories is any relationship between gender and portfolio statistically distinguishable. It seems unlikely that these results are entirely driven by the number of women in those categories. Other categories which have a large number of women such as the academic category have a quite high p value. As I previously mentioned, I expect that the marginal result in this case is driven by the coding of the variables. Not all legal and public sector jobs are the same. The result of of Table 3 makes up a part of the overall puzzle: I don't know if I fail to reject because of the paucity of women, or because of a pattern that makes it look like a lack of independence, I just don't know. If it is purely tokenism, then I might want to argue that they will be independent, because women should just randomly show up. Table five allows us to examine this finding and reasonably reject a hypotheses of tokenism.

While these three tables by themselves make it hard to test the key hypotheses of this paper, it is possible to test the hypothesis of conditional independence in a non-parametric setting. I can test $P \perp\!\!\!\perp G|B$ using a Cochran-Mantel Haenszel (CMH) test of conditional independence. The test statistic, M^2 , is for $2 \times J \times K$ tables, and is equal to the product of the difference between the observed and expected cells, divided by the variance of that difference, under the null hypotheses of independence. Since the denominator is the variance of the difference the CMH test works well in the face of problems that would otherwise harm inference in the parametric case, such as separation, and sparse data. The p value for this test, in this case, is $p < 0.0001833$. The test

statistic is $M^2 = 35.7913$, which is distributed χ_{11}^2 . See Agresti (2002) for further discussion of this method. Unfortunately, outside of the $2 \times 2 \times K$ case, it is impossible to tell the direction of the result. From this test I only know that the two variables are not independent, but cannot distinguish a direction for any relationship. For this, parametric results can further the discussion. Overall, the results suggest that the relationship between gender and portfolio type is a weak one, though this is hampered somewhat by the relative lack of data for women.

5.2 Parametric Results

To estimate the model, I've chosen to alternate tracks that fit within the logit framework. Both are interpreted as traditional logit. The estimates were generated using both "Firth" logit estimation (Firth, 1993; Heinze and Schemper, 2002), and random effects logistic regression, that relies on quadrature optimization instead of traditional maximum likelihood (see Rabe-Hesketh, Skrondal and Pickles (2002)). Table Five presents the Firth logit results, and Table Six presents the random effects logit. These two estimation strategies work to overcome two different problems. Firth logit is an effective strategy for overcoming the separation problem caused by predictors that perfectly predict failure. In essence, what the Firth logit strategy does, conceptually, is adds a 0.5 to every entry into the contingency table, thereby eliminating the zeros. Then, the likelihood is weighted during optimization, in order to limit the effect of the otherwise separating variable. In practice, both the weighting and the manipulation of the data to add values is done by restructuring the likelihood.

Random Effects logit does allow estimation to proceed when there is a separation problem. However, the resulting estimation has incredible standard errors and coefficient results. Though, this is not the particular problem that this estimating procedure is designed to overcome. Instead, random effects logit is a class of mixed model, designed to deal with heirarchical models. In OLS estimation, the problem of random effects is that the regressors do not vary by country. If one includes country effects, then the effects of a variable that only varies by country is not estimable. The solution, conceptually, is to subtract the country means from the dependent variable, and then

include the other country variant variables (Greene, 2003). A similar solution for regular logit estimation is somewhat non-sensical as the dependent variable is assumed to be a zero or a one. While I may still get estimates for my separating variables that are not intelligible, it can allow us to explore country varying affects. Since the data is a cross-section, variables which track the effect of political systems will not vary inside a country. However, time-series data is not likely to substantively change this fact; most variables that might have an effect (e.g. electoral system, legislative structure, executive structure) have not changed radically in most countries in this sample in the post World War II era. The only drastic exceptions to this have been the rise of the European Union and the fall of Communism. The former is already conceptually a part of this analysis, since I have included a category for EU portfolios.

Table 6 has the results of estimates for the model optimized using the Firth logit method.⁶ The utility of this model is apparent if you contrast the estimates for the finance and economy categories to those in Table 7. Utilizing the Firth technique, the estimates for the economy and finance parameters have reasonable values and standard errors, despite the fact that they would otherwise perfectly predict failure. For those two categories, even though one might expect a highly significant result in a negative direction, neither is significant. For the portfolio type variable only two are estimates are significantly different than zero, the welfare and education variables. Including country random effects has little effect on the results from the Firth logit specification. While no portfolio type has a strongly negative effect on gender, two categories of professional background have negative and significant coefficients. Unsurprisingly, the business and engineering professions lower the likelihood that a cabinet member is a woman. The key result here is that for both models, no portfolio variables are negative and significant. Two were positive and significant, the welfare and education categories. Figure one demonstrated as much. However, the lack of significance for any of the coefficients is a negative sign. After controlling for background, I am unable to tell if it is a lack of women with a professional background or if it is the position itself. Of the political system controls, only specialist systems seem to have a significant effect on the

⁶All results were estimated using Stata 9.2. Results from Table 6 used the `firthlogit` command. Table 7 used the `xtlogit` command. Do files for results available on request.

probability that the cabinet member is a woman. That effect is positive, though the substantive effect is fairly small. Partisanship is likely not entered into the model in a way that captures its effect correctly. The effect of partisanship is not significant. Capturing the affect of partisanship is difficult, because of the functional form it implies, and the unobservability of candidates.

6 Conclusions

For this sample, it is difficult to argue that discrimination against women is occurring at the level of cabinet politics. The evidence suggests that the discrimination is more widespread. Women are not entering into politics through business and engineering routes, and this significantly limits the issue areas that they can be recruited to represent. The business and engineering sectors have a strong depressive effect on the likelihood of a cabinet member being a woman. Of course, this is a deceptive finding; it seems that it would suggest that there are women candidates who are have been rejected because they are women and come from business. That would be incorrect, the business profession is supplying less women, this is why they are less likely to be women cabinet members with business backgrounds. Again, I do not observe candidates, which is a strong limitation on any inferences regarding discrimination in the case of the cabinet. However, a real strength of this analysis is that I can control for something that confounds other studies, personal and political reasons for entering politics. It is because of the more limited scope, and the higher profile of the individuals that I can gather information pertaining to single politicians. It seems that this information would be costly and difficult to gather otherwise.

As this paper currently stands, the existing state of political controls is not satisfying. I suspect that partisanship might have more pernicious effects that would need to be sorted out. Primarily, because women legislators on the right are frequently preference outliers as it comes to social issues. This might imply that there is an interactive structure between partisanship and portfolio types. Modeling this would be a difficult proposition. Since my functional form is catagorical the number of right hand side variables nearly doubles as a result of this interaction, and interpretation becomes unwieldy for an already parameter heavy model. Additionally, I need to gather more

data so that I can utilize friendlier functional forms. While the number of parameters might not strictly decrease, because of data problems I am limited in the number of models I can use to create parameter estimates. Something other than the single equation form might be better suited for capturing the interactive nature of the argument.

The political change that I would expect would bring about swift changes in the number of women in the cabinet would not be a change to the structure of executive level government. Instead, I can jointly figure works such as Davis (1997), and Siaroff (2000) as evidence that a change in the number of women in the legislature has a direct and quick effect on the number of women in the cabinet. The solution then is electoral reform. SMD systems have been shown to be a large impediment to descriptive representation, even if for nothing else than incumbency advantage (Iversen and Rosenbluth, 2006). Salmond (2006) shows that the expectation of electoral reform ranges between a one percent and six percent increase in the number of women in the legislature. Davis (1997) shows that there is a roughly 1:1 ratio between the number of women in the legislature and the number of women in the cabinet. This suggests that the impact of electoral reform might be somewhat limited. In my sample, the average cabinet size is 15.833 [95% C.I. : 14.5, 16.61]. A one percent increase in the number of women implies roughly one more women per cabinet for the most drastic of electoral reforms, such as that which Italy undertook in the mid-90's. While this isn't a figure that I can easily build confidence intervals around, it is suggestive. Political reform is not likely to take us the entire way there. Even in a system absent any discrimination at the political level, we are not guaranteed a drastic increase in descriptive representation. What is needed is broader societal changes to get us the whole way.

Society wide gender ideology, it has been shown, largely determines the participation levels of women (Paxton and Kunovich, 2003). This seems somewhat tautological, people participate to the degree that they think they should participate, but this begins to demonstrate a leverage point. If we alter the position of women in society, then we will see the largest changes in political representation. This perhaps reveals an underlying view of government similiar to (Truman, 1951). Government is an accumulation of groups in society, and reflects the need to respond to those

groups, as well as works as a place of interaction between them. While the things that shift societal values are beyond the scope of this paper, it is key in this study. As Iversen and Rosenbluth (2006) argue, economic and society features, such as factor specificity, strongly effects participation of minority groups, women specifically. As our ability to make a society less dependent upon the utility of being male grows, the political system will reflect those changes.

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Table 1: Gender of Portfolio Holders and Political Controls, by Country

	Male	Female	Total	PR?	Specialist?	Rightist Gov't?
Austria	6	5	11	Yes	Yes	Yes
Belgium	11	3	14	Yes	No	Yes
Bulgaria	14	5	19	Yes	Yes	No
Czech Republic	13	2	15	Yes	No	No
Denmark	12	6	18	Yes	No	Yes
Estonia	11	2	13	Yes	Yes	Yes
Finland	10	6	16	Yes	Yes	No
France	13	3	16	No	Yes	Yes
Germany	7	6	13	Yes	Yes	Yes
Hungary	15	2	17	Yes	No	No
Iceland	8	3	11	Yes	No	Yes
Ireland	11	3	14	Yes	No	No
Latvia	13	4	17	Yes	No	No
Lithuania	11	2	13	Yes	No	No
Netherlands	10	5	15	Yes	Yes	Yes
Norway	11	7	18	Yes	Yes	Yes
Poland	14	1	15	Yes	No	No
Portugal	14	2	16	Yes	Yes	Yes
Romania	15	2	17	Yes	No	No
Slovakia	14	0	14	Yes	No	No
Slovenia	14	1	15	Yes	No	No
Sweden	9	11	20	Yes	Yes	No
United Kingdom	12	4	16	No	No	No
Ukraine	20	1	21	Yes	Yes	No
Total	288	86	374			

For H_0 : Country \perp Gender, $\chi^2_{23} = 43.27$, $\text{Pr} < 0.006$

Table 2: Professional Background by Gender

	Male	Female	Total
Legal	36	11	47
Academic/Medicine	51	12	63
Teaching	9	8	17
Lobbyist/Activist	2	3	5
Business/Econ	37	4	41
Engineering/Agriculture	35	2	37
Public Sector	22	14	36
Party	10	7	17
Media	21	3	24
Police/Def/Other	3	4	7
Total	226	68	294

For H_0 : Background \perp Gender, $\chi^2_9 = 34.77$, Pr < 0.000

Figure 1: Frequency Distribution of Gender by Portfolio

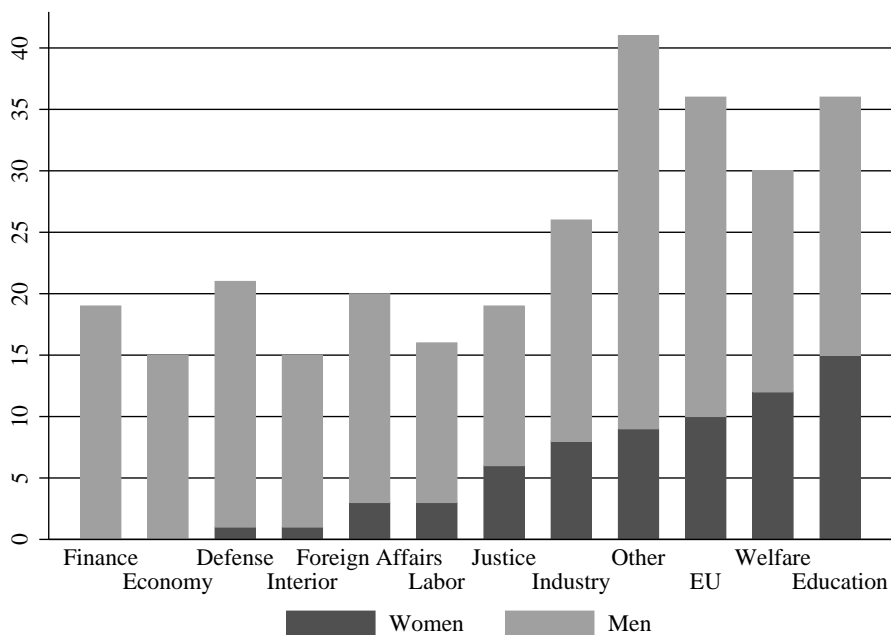


Table 3: Portfolio Type By Background, for Women

	Legal	Academic	Teaching	Activist	Business	Engineering	Public Sector	Party	Media	Other	Total
Foreign Affairs	1	0	0	0	0	0	2	0	0	0	3
Defense	0	1	0	0	0	0	0	0	0	0	1
Finance	0	0	0	0	0	0	0	0	0	0	0
Economy	0	0	0	0	0	0	0	0	0	0	0
Industry/Agriculture	1	1	0	1	1	1	3	0	0	0	8
Welfare/Health	0	4	2	2	0	0	1	1	1	1	12
Labor	1	1	0	0	0	0	0	1	0	0	3
Education/Culture	3	3	4	0	2	0	1	1	0	1	15
Interior	0	0	0	0	0	0	1	0	0	0	1
EU/Environment	1	1	2	0	0	1	3	1	1	0	10
Justice	4	0	0	0	1	0	1	0	0	0	6
Other	0	1	0	0	0	0	2	3	1	2	9
Total	11	12	8	3	4	2	14	7	3	4	68

There were no women finance or economy ministers during this period. For H_0 : Background \perp Portfolio | Gender = Female, $\chi^2_{81} = 77.97$, Pr = 0.574

Table 4: Portfolio Type By Background, for Men

	Legal	Academic	Teaching	Activist	Business	Engineering	Public Sector	Party	Media	Other	Total
Foreign Affairs	4	9	0	0	0	0	2	0	2	0	17
Defense	4	3	1	1	1	1	6	0	2	1	20
Finance	3	4	1	0	7	0	2	0	2	0	19
Economy	3	2	0	0	2	4	2	0	2	0	15
Industry/Agriculture	0	1	1	0	2	11	1	1	0	1	18
Welfare/Health	1	8	0	0	4	1	1	0	3	0	18
Labor	1	2	1	0	2	1	3	3	0	0	13
Education/Culture	1	11	2	0	3	0	0	0	4	0	21
Interior	4	0	0	1	1	4	3	1	0	0	14
EU/Environment	0	6	2	0	4	7	2	3	2	0	26
Justice	10	2	0	0	0	0	0	0	1	0	13
Other	5	3	1	0	11	6	0	2	3	1	32
Total	36	51	9	2	37	35	22	10	21	3	226

For H_0 : Background \perp Portfolio | Gender = Male, $\chi^2_{99} = 207.07$, Pr < 0.000

Table 5: Probability Gender is not Independent of Portfolio Conditioned on Background

Background	<i>p</i> value	N
Legal	0.049	47
Academic/Medicine	0.595	63
Teaching	0.489	17
Lobbyist/Activist	0.400	5
Business/Econ	0.042	41
Engineering/Agriculture	1.000	37
Public Sector	0.037	36
Party	0.580	17
Media	0.968	24
Police/Def/Other	1.000	7

p values calculated using Fischer's Exact test

Table 6: “Firth” Logit Estimation Results

Variable	Coefficient	(Std. Err.)
Defense	-1.242	(1.077)
Finance	-1.777	(1.597)
Economy	-1.431	(1.595)
Industry	1.318	(0.840)
Welfare	1.659*	(0.790)
Labor	0.334	(0.903)
Education	1.792*	(0.762)
Interior	-0.691	(1.094)
EU	1.030	(0.784)
Justice	1.025	(0.854)
Other	0.757	(0.793)
Academic	-0.549	(0.569)
Teaching	0.361	(0.730)
Activist	1.704	(1.381)
Business	-1.412*	(0.695)
Engineering	-1.730*	(0.849)
Public Sector	0.947	(0.601)
Party	0.423	(0.688)
Media	-1.080	(0.762)
Military/Other	0.652	(0.951)
PR	-0.654	(0.696)
Rightist Gov't	0.496	(0.382)
Specialist	0.706*	(0.357)
Intercept	-1.492	(0.939)
N	294	
Log-likelihood	-103.802	
$\chi^2_{(23)}$	48.441	

* $p < 0.05$

Table 7: Random Effects Logit Estimation Results

Variable	Coefficient	(Std. Err.)
Equation 1 : female		
Defense	-1.641	(1.272)
Finance	-26.118	(286594.391)
Economy	-24.931	(193233.364)
Industry	1.526 [†]	(0.906)
Welfare	1.921*	(0.853)
Labor	0.370	(0.983)
Education	2.071*	(0.824)
Interior	-1.039	(1.302)
EU	1.190	(0.845)
Justice	1.201	(0.917)
Other	0.900	(0.856)
Academic	-0.590	(0.604)
Teaching	0.370	(0.777)
Activist	2.062	(1.509)
Business	-1.610*	(0.748)
Engineering	-1.980*	(0.936)
Public Sector	1.096 [†]	(0.652)
Party	0.453	(0.738)
Media	-1.264	(0.823)
Military/Other	0.752	(1.036)
PR	-0.664	(0.761)
Rightist Gov't	0.575	(0.409)
Specialist	0.773*	(0.381)
Intercept	-1.762 [†]	(1.027)
Equation 2 : Insig2u		
Intercept	-4.733**	(0.599)
N		294
Log-likelihood		-113.208
$\chi^2_{(23)}$		47.058

* $p < 0.05$, [†] $p < 0.10$